

Safety Data Sheet: Perfluoro-n-butylcyclohexane

Revision Date: 25 January 2016

According to Regulation (EC) No 1272/2008



Section 1 Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifiers

Product name: Perfluoro-n-butylcyclohexane

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Uses Chemical Tracer

Uses advised against This product is not recommended for any industrial, professional or consumer use other than the identified use above.

1.3 Company information

Company Tracerco Ltd.
Belasis Hall Technology Park
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Cleveland
TS23 4EA
UK

Telephone +44 (0)1642 375450

Fax +44 (0)1642 370704

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1.4 Emergency telephone number

Emergency phone no. +44 (0)1642 375500.

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Section 2 Hazardous Identification

2.1 Classification of the substance or mixture

Classification (EC 1272/2008)

Acute Toxicity (Category 4)	H02 Harmful if swallowed
Skin Irritation (Category 2)	H315 Causes skin irritation
Eye Irritation (Category 2)	H319 Causes serious eye irritation
Specific target organ toxicity (Single exposure Category 3)	H335 May cause respiratory irritation

2.2 Other hazards that do not result in classification

No information known.

2.3 Label elements

Label in accordance with (EC) No. 1272/2008

Pictogram



Signal word

Warning

Hazard Statements:

H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Precautionary Statements:

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection

Supplemental Precautionary Statements

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None

Supplemental label information

None

2.4 Other hazards

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

Section 3 Composition and Information on Ingredients

Substances listed below with non-hazardous additions.

Formula

C₁₀F₂₀

Molecular Weight

500.08 g/mol

CAS#	EC#	Component	Classification	Concentration
374-60-7		Perfluoro-n-butylcyclohexane	Acute toxicity (Category 4) Skin irritation (Category 2) Eye irritation (Category 2) Specific target organ toxicity (Single exposure 3)	100 %

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Section 4 First-Aid Measures

4.1 Description of first aid measures

Inhalation	<p>Remove victim immediately from source of exposure, ensuring your own safety while doing so.</p> <p>Move into fresh air. If required, provide artificial respiration. Keep patient warm and keep at rest.</p> <p>Get medical attention if any discomfort continues.</p>
Ingestion	<p>DO NOT INDUCE VOMITING.</p> <p>Wash out mouth with water.</p> <p>If vomiting occurs, keep head low so that stomach content does not get into the lungs.</p> <p>When risk of unconsciousness, place and transport the victim in secured side position.</p> <p>Get medical attention if appropriate to do so.</p>
Skin contact	<p>Remove contaminated clothes and instantly wash with water and soap and rinse thoroughly.</p> <p>Get medical attention if appropriate to do so.</p>
Eye contact	<p>Rinse opened eye for several minutes under running water.</p> <p>Make sure to remove any contact lenses from the eyes before rinsing.</p> <p>Continue to rinse for at least 15 minutes.</p> <p>Get medical attention if appropriate to do so.</p>

4.2 Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

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Section 5 Fire-Fighting Measures

5.1 Extinguishing media

Extinguishing media	Use alcohol-resistant foam, dry chemical or carbon dioxide
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5.2 Special hazards arising from the substance or mixture

Hazardous combustion products	During fire, toxic gases carbon monoxide, carbon dioxide and hydrogen fluoride are formed.
Unusual Fire & Explosion Hazards	None Known.
Specific hazards	In case of fire, toxic gases may be formed.

5.3 Advice for fire-fighters

Special fire fighting procedures	Avoid breathing fire vapours. Ventilate closed spaces before entering them.
Protective equipment for fire-fighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Section 6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

6.3 Methods and material for containment and cleaning up

Contain spillage, and then collect with suitable non-combustible absorbent or by wet-brushing. Place in container for disposal according to local regulations.

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6.4 Prevention of secondary hazards

Keep away from ignition sources.

6.5 Reference to other sections

See section 7 for safe handling. Wear protective clothing as described in section 8 of this safety data sheet.

For waste disposal, see section 13.

Section 7 Handling and Storage

7.1 Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Avoid contact with skin and eyes. Avoid vapour, gas and mist formation. Ensure there is sufficient ventilation of the area. Do not handle in a confined space. No smoking. Take measures to prevent the build-up of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions: Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent spillage/leakage. Store tightly sealed in original container at a temperature above 0°C.

7.3 Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

Section 8 Exposure Controls/Personal Protection

8.1 Control parameters

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

8.2 Exposure controls

Exposure controls:

Engineering measures	Provide adequate ventilation
General protective and hygienic measures	The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin. Maintain an ergonomically appropriate working environment.
Breathing equipment	If ventilation is insufficient, suitable respiratory protection must be

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	provided.
Recommended filter device for short term use	Use NIOSH certified combination respirator (gas/vapour) with an APF of 10.
Protection of hands	Check protective gloves prior to each use for their proper condition. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Material of gloves	The selection of suitable gloves not only depends on the material, but also on quality. Gloves must be impervious to chemical exposure. Quality will vary from manufacturer to manufacturer. Nitrile gloves are suitable depending on quality.
Eye protection	Safety glasses.
Body protection	Protective work clothing.

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Section 9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid
Colour	Not determined
Odour	Not determined
Initial boiling point and Range (°C)	145-147 °C
Melting Point (°C)	Not determined
Relative Density	1.899 g/mL
Vapour pressure	Not determined
Viscosity	Not determined
Solubility Value (G/100G H ₂ O@20°C)	Not determined
Flash Point (°C)	Not determined
Auto Ignition Temp. (°C)	Not determined
Flammability Limit – Lower(%)	Not determined
Flammability Limit – Upper(%)	Not determined
Partition coefficient (n-Octanol/water)	Not determined
Explosive properties	Not determined
Oxidising properties	Not determined

Attention: The above does not constitute as a specification.

9.2 Other information

No further relevant information available.

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Section 10 Stability and Reactivity

Reactivity	There are no known reactivity hazards associated with this product
Chemical stability	Stable under recommended storage conditions and recommended use
Possibility of hazardous reactions	There are no known reactivity hazards associated with this product
Conditions to Avoid	Avoid excessive heat for prolonged periods of time. Avoid heat, flames and other sources of ignition. Avoid exposure to high temperatures or direct sunlight.
Incompatible materials	Strong oxidising substances. Strong acids.
Hazardous decomposition products	During fire, toxic gases carbon monoxide, carbon dioxide, and hydrogen fluoride are formed.

Section 11 Toxicological Information

Acute toxicity	Toxic if ingested.
Skin irritation or corrosion	Causes skin irritation.
Eye irritation or corrosion	Causes serious eye irritation.
Sensitization	No sensitizing effect known.
Germ cell mutagenicity	This substance has no evidence of mutagenic properties.
Carcinogenicity	This substance has no evidence of carcinogenic properties.
Reproductive toxicity	This substance has no evidence of toxicity to reproduction.
Specific target organ system toxicity - repeated exposure	No effects known.
Specific target organ system toxicity - single exposure	No effects known.
Aspiration hazard	Maybe fatal if inhaled.
Subacute to chronic toxicity	No effects known.

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Section 12 Ecological Information

Toxicity	No further relevant information.
Persistence and degradability	No further relevant information.
Bioaccumulative potential	No further relevant information.
Mobility in soil	No further relevant information.
Results of PBT and vPvB assessment	Not classified as PBT/vPvB by current EU criteria.
Other adverse effects	No further relevant information.

Section 13 Disposal Considerations

13.1 General Information

Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely emptied and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations.

13.2 Waste treatment methods

This material must be disposed of via an authorised Waste Disposal Company in accordance with Local and or National Waste Disposal Regulations.

13.3 Waste Class

This material and container must be disposed of as a HAZARDOUS WASTE.

Section 14 Transport Information

14.1 UN number

DOT/ADR/RID/ADN: -

IMDG: -

ICAO: -

14.2 UN proper shipping name

DOT/IMDG/IATA/ADR Not dangerous goods

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14.3 Transport hazard class

ADR/RID/ADN Class -
ADR Label No. -
IMDG Class -
ICAO Class/Division -

14.4 Packing group

ADR/RID/ADN Packing group -
IMDG Packing group -
ICAO Packing group -

14.5 Environmental hazards

None

14.6 Special precautions for user

No data available.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No information required.

Section 15 Regulatory Information

15.1 Safety, health, and environmental regulations

Safety, health and environmental regulations/legislation specific for the substance or mixture:

15.1.1 UK Regulatory References

Health and Safety at Work Act 1974.

The Control of Substances Hazardous to Health Regulations 2002(S.I. 2002 No.2677) with amendments.

15.1.2 Statutory Instruments

Control of Substances Hazardous to Health.

15.1.3 EU Legislation

Dangerous Substances Directive 67/548/EEC.

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No

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793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.

15.1.4 US Regulatory References

United States (U.S.) Hazard Communication Standard (2012) (HCS 2012)

OSHA, 29 CFR 1910.1200(g) and Appendix D. United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), third revised edition, United Nations, 2009.

15.1.5 Canada Regulatory References

Canada Hazardous Products Regulations (HPR 2015), including the Workplace Hazardous Materials Information System (WHMIS 2015).

15.2 Notification status

ELINCS (European List of Notified Chemical Substances)	None of the ingredients is listed.
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006	None of the ingredients are listed
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.	None of the ingredients is listed.
Annex XIV of the REACH Regulations (requiring Authorisation for use)	None of the ingredients is listed
United States of America Toxic Substances Control Act 2012 (TSCA)	R&D use only.

15.3 Chemical Safety Assessment

A chemical safety assessment has not been carried out.

Section 16 Other Information

16.1 Revision Comments

Issue 001

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16.2 Phrases used in S.2 and 3

H302 Harmful if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation

Disclaimer: This MSDS has been prepared using information from sources considered technically reliable. It should not be relied upon as a product specification. The company makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other chemical substances. Every user of the product is responsible for evaluating its own processes and conditions of use and selecting appropriate protective measures for employee exposure.

Section 17 Abbreviations and Acronyms

Table of abbreviations and acronyms:

Abbrev.	Description
ACGIH	American Conference of Governmental Industrial Hygienists (USA)
AND	European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE	Acute Toxicity Estimate.
CAS	Chemical Abstracts Service (division of the American Chemical Society)
DOT	Department of Transport (USA)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Medical Services
EPA	Environmental Protection Agency (USA)

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GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association.
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods.
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent, Bioaccumulative, Toxic
RID	Regulations Concerning the International Transport of Dangerous Goods (Europe)
VbF	Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
vPvB	Very Persistent and very Bioaccumulative